Remarks

Applicants respectfully request reconsideration of the above-identified application. Claims 1-32 and 34-59 remain in this application. Claim 33 was canceled. Claims 17, 25-26, 35, and 39-59 have been withdrawn.

I. Disclosure Statement

Applicants apologize for failing to include copies of two of the references cited in the previous Disclosure Statement. Applicants have resubmitted these references with a supplemental Information Disclosure Statement for consideration.

II. Double Patenting Rejection Based on Application No. 10/452,892

Claim 1 was provisionally rejected under obviousness-type double patenting as unpatentable over claims 1, 35, and 37 of U.S. Patent Application Serial No. 10/142,044. Applicants assume that the serial number reflects a typo, and that the correct serial number is 11/142,044.

To overcome this rejection, Applicants submit the enclosed terminal disclaimer.

III. Double Patenting Rejection Based on Application No. 11/208,464

Claim 1 was provisionally rejected under obviousness-type double patenting as unpatentable over claim 14 of pending U.S. Patent Application Serial No. 11/208,464.

To overcome this rejection, Applicants submit the enclosed terminal disclaimer.

IV. Rejection Based on the 2004/0241482 Publication

Claims 1-16, 18-24, 27-32, and 36 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent Application Publication 2004/0241482 filed June 2, 2003 (corresponding to Serial No. 10/452,892).

In the previous response, Applicants submitted a Rule 1.132 Declaration of Grah and Havens to establish that the inventors of the present application -- Grah and Havens – conceived the subject matter of the '482 publication that is relied upon in the §102(e) rejection. Namely, Grah and Havens contributed the idea of the subsequent irradiation of one or more film layers comprising single wall carbon nanotubes. (*See* '482 publication ¶¶ 0014-0017, 0029, 0041-0052, and 0138.)

Accordingly, the relevant subject matter asserted to be disclosed in the '482 publication, but which is not claimed in the '482 publication, was derived from the work of the inventors of the present application. Therefore, the previously disclosed subject matter is not the invention "by another" as required by §102(e).

The present Office action asserts that the showing under this Declaration is insufficient to overcome the rejection because "Havens is not an applicant for 10/452,892." (Office action mailed May 18, 2006 at page 13, ¶3.) In support, the Office action cites MPEP §715.01(a). That section states:

> When subject matter, disclosed but not claimed in a patent or application publication filed jointly by S and another, is claimed in a later application filed by S, the joint patent or application publication is a valid reference under 35 U.S.C. 102(a) or (e) unless overcome by . . . an unequivocal declaration under 37 CFR 1.132 by S that he/she conceived or invented the subject matter disclosed in the patent or application publication and relied on in the rejection. *In re DeBaun*, 687 F.2d 459, 214 USPQ 933 (CCPA 1982).

However, this statement in the MPEP does not establish a *requirement* that an earlier application must have named as applicants all the applicants of a subsequent application if the subsequent applicants seek to establish that the subject matter disclosed in the earlier application was derived from the work of the subsequent applicants. Rather, this MPEP statement is merely an example of *one situation* – namely, the situation in DeBaun -- in which a subsequent applicant can establish that the subject matter disclosed in an earlier application is not the invention "by another" as required by §102(e).

In fact, a rule 132 affidavit may be used to overcome a 102(e) rejection where the

named applicants of the earlier application do not include the applicants of the subsequent application. *In re Mathews*, 161 USPQ 276 (CCPA 1969). In the Mathews case, Dewey filed an earlier application describing an invention claimed in an application later-filed by Mathews. *Id. at* 277. The Examiner rejected the Mathews application under 102(e) in view of the earlier Dewey application. *Id.* In response, Mathews submitted a rule 132 affidavit to establish that Dewey derived from Mathews the relevant information disclosed in the Dewey application that formed the basis for the rejection.[1] *Id.* at 278. This was sufficient to overcome the 102(e) rejection even though Mathews was not a named applicant of the Dewey application. *Id.* at 279.

Just as the inventive entity "Mathews" was not named as applicant in the earlier Dewey application, so too is the inventive entity "Grah and Havens" of the present application not named as applicant in the earlier "Grah and Ahlgren" application that is applied as the 102(e) reference. Also as in *Mathews*, the present applicants have submitted a rule 132 affidavit establishing that the relevant information disclosed in the earlier application, which formed the basis for the 102(e) rejection, was derived from the present applicants.

Accordingly, just as in *Mathews*, the rule 132 affidavit in the present case is sufficient to overcome the 102(e) rejection, regardless of the named applicants in the earlier application.

V. Obviousness Rejections

A. Noel, Dupire, and Dunn

Claims 1-12, 13-16, 18-24, 27, 32, and 36 were rejected under 35 U.S.C. §103(a) as obvious in view of U.S. Patent 6,355,287 to Noel combined with U.S. Patent 6,331,265 to Dupire and U.S. Patent 4,871,559 to Dunn. Applicants respectfully traverse.

Noel teaches that "two or more thermoplastic films or sheets" may be heat-sealed or joined together "by heating areas in contact with each other to the temperature at which fusion

[1] Mathews, the applicant of the later application, submitted a rule 132 affidavit by Dewey, who was the applicant of the prior application. However, it is clear that the current practice is to submit a rule 132 affidavit by the later applicant to establish derivation. *See* MPEP §716.10.

occurs, usually aided by pressure." The heating can be performed, for example, by infrared radiation. (Column 5, lines 51-62.)

Dupire teaches incorporating carbon nanotubes in a polymer and further orienting the nanotubes to reinforce the polymer by solid state stretching. (Column 2, lines 27-41.) The reinforced polymer is useful, for example, to make fibers and filaments. (Column 3, lines 11-13.)

Dunn teaches food preservation by inactivating microorganisms and/or enzymes using pulses of intense light to a food product. (Abstract; column 9, lines 42-58.)

To establish a *prima facie* case of obviousness, the prior art must provide the teaching or suggestion supporting a combination of references. The mere fact that references could be combined does not render the resultant combination obvious. MPEP 2143.01. It is impermissible to use the present application as a source of motivation for combining the prior art references to attempt to arrive at the present invention. MPEP 2142.

The previous Office action proposed the following as the motivation to incorporate the carbon nanotubes of Dupire into the Noel film: a furtherance of the "goal of preventing the failure of the shrink film . . . since reinforcing the seal layer necessarily reinforces the seal." (Office action mailed May 18, 2006 at page 7.)

Neither Noel nor Dupire support the proposition that the incorporation of nanotubes in a film seal layer necessarily reinforces a heat seal made with the film. Noel says nothing about the use of reinforcing particles in seal layers or heat seals. Rather, Noel teaches several other factors to improve heat seal performance, for example, the use of homogeneous ethylene/alpha-olefin copolymer as the seal layer. (Column 23, lines 3-14.) And Dupire does not even mention films, much less the incorporation of carbon nanotubes in the seal layer of a film to improve the heat seal performance or to reinforce a heat seal.

To the extent that the Examiner is relying upon common knowledge or well-known prior art to establish that incorporating carbon nanotubes in a seal layer reinforces a heat seal, Applicants respectfully request that the Examiner supply references to support that position. *See* MPEP 2144.03.

Further, a *prima facie* case of obviousness requires that the applied prior art references teach or suggest *all* of the claim limitations. MPEP §706.02(j). A claimed invention is not obvious in view of a combination of references that does not teach or suggest all of the claim recitations. MPEP §2143.03.

Claim 1 recites that the exposing step "structurally disrupt[s] at least a portion of the single-walled carbon nanotube material." The combination of Noel, Dupire, and Dunn fail to teach or suggest this recitation. In fact, Dunn does not suggest anything regarding structurally disrupting particles or shrinking a film.

The Office action states that the application of the Dunn radiation would necessarily structurally disrupt the carbon nanotubes. (Office action mailed May 18, 2006 at page 8.) However, this argument runs contrary to the rationale for combining the references in the first place. The motivation proposed by the Office action for combining Dupire with Noel was the reinforcing effect of the carbon nanotubes on the sealing layer and the resulting heat seal, as discussed above. Yet the Office action also proposes that the Dunn radiation would necessarily structurally disrupt the carbon nanotubes. This structural disruption of the nanotubes would assumedly prevent the nanotubes from providing the reinforcing effect proposed by the Office action. Therefore, the proposed motivation for combining the Dupire and Noel references does not hold if Dunn is also applied.

Further, a result that may be inherent by following the combined teachings of the prior art is immaterial if one of ordinary skill in the art would not appreciate or know the inherent result. *In re Naylor*, 152 USPQ 106, 108 (CCPA 1966). In *Naylor*, the claims were directed to a method of polymerizing butadiene to produce a rubbery polybutadiene containing at least 80% of 1,2-addition by using: 1) a molybdenum catalyst ($MoCl_3$), 2) an organoaluminum compound (AlR_3), and 3) a promoter. *Id.* at 107. The Office rejected the claims obvious over a D1 reference (Crawford) combined with a D2 reference (Badische-Anilin). The D1 reference taught two claim elements -- the catalyst and the organoaluminum compound -- for polymerization of

butadiene. The D2 reference taught a three-component system of the catalyst, the organoaluminum compound, and the promoter for polymerization of *mono-olefins*. *Id.*

None of the references indicated that the addition of promoter would produce a butadiene rubbery polymer having high 1,2-addition. *Id.* at 108. However, the Office argued this result would be an *inherent result* that would flow naturally from combining the teachings of the references. The court rejected that position and reversed the obviousness rejection. The inherent results from following the combined teachings of the prior art is quite immaterial if one of ordinary skill would not appreciate or recognize (i.e., "know") the inherent result of producing the specified polybutadiene. *Id.*

> [T]he inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.

Id. (citing *In re Spormann* 150 USPQ 449, 452 (CCPA 1966).

In *Naylor*, the Office proposed that applying the D2 method of producing polyolefins to the D1 butadiene monomers would inherently produce the specified polybutadiene. Similarly, in the present case, the Office proposes that applying the Dunn radiation to the Noel film incorporating the Dupire nanotubes would inherently shrink the film. Just as in *Naylor*, where nothing indicated that one of skill would have known that the combination would produce the specified polybutadiene, so too in the present case do none of the references applied suggest that one of skill would have known of the proposed inherent result (i.e., the shrinking of film). Accordingly, just as in *Naylor*, the present application should not be rejected as obvious over an unknown inherent result.

Further, a *prima facie* case of obviousness also requires that the prior art provide a reasonable expectation that the proposed modification will succeed. (MPEP §2142.) The reasonable expectation of success must *not* be based on Applicants' disclosure. (*Id.*)

In the present case, the Office action fails to provide any basis (other than the Applicants' disclosure) for a reasonable expectation that the proposed modification would

reasonably be expected to succeed in activating the shrink characteristic of a film, as recited in claim 1.

Dependent claims 2-12, 13-16, 18-24, 27, 32, and 36 include further recitations to those of claim 1 from which they ultimately depend, and are therefore further patentable over the combination of Noel, Dupire, and Dunn.

B. Noel, Dupire, Dunn, and Havens

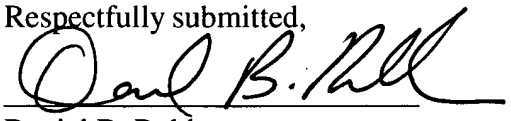
Dependent claims 37-38 were rejected under 35 U.S.C. §103(a) as obvious in view of Noel combined with Dupire, Dunn, and U.S. Patent 5,110,530 to Havens.

Applicants respectfully submit that Havens fails to supplement the above noted shortcomings of Noel, Dupire, and Dunn with respect to teaching or suggesting an exposing step that "structurally disrupt[s] at least a portion of the single-walled carbon nanotube material" as recited in claim 1, from which claims 37-38 ultimately depend.

VI. Conclusion

In view of the terminal disclaimers and these remarks, it is respectfully submitted that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested.

Respectfully submitted,



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